Please encrypt the given plaintext using given algorithms, for questions 1 to3. Explain your calculations.

1. Plairfair cipher (20pts)
   1. The key is your own name. i.e. “Haydar”
   2. The text to encrypt is “Cryptography is fun”
2. Hill Cipher (30pts)
   1. The key is 3x3 matrix that represents the letters of your own surname. Use it repeatedly if it is shorter than 9.

i.e. for C U K

U R T

E P E

I will use (This is my keyword, use yours.)

2 20 10

20 17 19

4 15 4

* 1. The text to encrypt is “Cryptography is fun”

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **a** | **b** | **c** | **d** | **e** | **f** | **g** | **h** | **i** | **j** | **k** | **l** | **m** | **n** | **o** | **p** | **q** | **r** | **s** | **t** | **u** | **v** | **w** | **x** | **y** | **z** |
| **0** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |

1. Vigenere cipher (20pts)

a. The key is your own name. i.e. “Haydar”

b. The text to encrypt is “Cryptography is fun”

1. Suppose we are told that the plaintext (30pts)

breathtaking

when ecrypted, the ciphertext becomes:

RUPOTENTOIFV

where the Hill Cipher is used (but **m** is not specified). Determine the encryption matrix.